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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/650,533

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EXAMINER

SIEFKE, SAMUEL P

ART UNIT

PAPER NUMBER

1743

MAIL DATE

DELIVERY MODE

05/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/650,533

Applicant(s)

MARUO ET AL.

Examiner

Samuel P. Siefke

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/2/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-39 and 59-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27, 29, 31-33, 60 and 61 is/are allowed.
- 6) ☒ Claim(s) 21-24, 28, 30 and 34 is/are rejected.
- 7) ☒ Claim(s) 35-39 and 59 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21- 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ando et al. (USPN 6,911,179).

Ando discloses an ozone detector that comprises a transparent porous material (porous glass), a dye that is deposited in a pore of the porous material and changes in color (visible region) in response to ozone being present (col. 6, lines 14-38). Ando discloses the dyes have a continuous absorption band in a wide wavelength range of ultraviolet-visible-to near infrared ray, but goes onto state that specific dye exhibit certain colors (predetermined) upon exposure to ozone (col. 8, lines 13-30). Regarding claim 22, it is inherent that pores within the porous glass break the surface and are couple to pores below the surface because this is a result of a sol-gel method. Regarding claim 24, Ando discloses the polymer particles can be pulverized into fine particles with a particle size of 1 um or less and placed within the pore of the porous glass (col. 6, lines 28-31).

Art Unit: 1743

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (USPN 6,911,179) in view of JP 62-291564 (herein after JP '564).

Ando discloses an ozone detector as seen above.

Ando does not teach antriphenylmethane stain.

JP '564 discloses an ozone detection element that comprises a porous material 3 that contains a triphenylmethane leuco dye therein (impregnated) and an acid stabilizer. The ozone detection element reacts with ozone in the surrounding air to develop a colorimetric reaction in the visible region. Therefore it would have been obvious to one having an ordinary skill in the art at the time of the invention to modify Ando to employ a

Art Unit: 1743

triphenylmethane leuco dye because this is a very well know dye that is reactive with ozone to produce a colorimetric response in the visible region.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (USPN 6,911,179) in view of DE 19619226 (herein after DE '226).

Ando discloses an ozone detector as seen above.

Ando does not teach an indigo dye.

DE' 226 teaches an ozone gas sensing element that comprises a dye with conjugate double bonds in a polymer layer containing polymers. The ozone element reacts with the ozone gas in the surrounding air and changes in a light absorption characteristic in the visible region (col. 2-4, fig. 1). Indigo is discussed in the translated abstract text. It would have been obvious to one having an ordinary skill in the art at the time of the invention to modify Ando to employ an indigo dye because this is a very well know dye that is reactive with ozone to produce a colorimetric response in the visible region.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (USPN 6,911,179) in view of DE 19619226 (herein after DE '226) and in further view of JP 62-291564 (herein after JP '564).

Ando discloses an ozone detector as seen above.

The modified Ando does not teach an acid stabilizer in addition to the dye.

JP '564 discloses an ozone detection element that comprises a porous material 3 that contains a triphenylmethane leuco dye therein (impregnated) and an acid stabilizer. It would have been obvious to one having an ordinary skill in the art to modify the

Art Unit: 1743

modified Ando to employ an acid stabilizer because this allows the dye to remain stable in the presence of the reactive component of ozone. This is a desirable addition to ozone sensors because it also provides more stability to the dye over time.

***Allowable Subject Matter***

Claims 25-27, 29, 31-33 and 60-61 are allowed.

Claims 35-39 and 59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1743

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel P. Siefke whose telephone number is 571-272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sam P. Siefke



May 9, 2007



Jill Warden  
Supervisory Patent Examiner  
Technology Center 1700